Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a crystalline semiconductor film on an insulating surface;

forming an insulating film on said crystalline semiconductor film;

introducing a first dopant impurity into said crystalline semiconductor film through said insulating film by ~~an~~ a first ion doping;

annealing said crystalline semiconductor film; ~~and~~

forming a gate electrode over said insulating film[[,]]; and

introducing a second dopant impurity into said crystalline semiconductor film by a second ion doping by using the gate electrode as a mask,

wherein a peak of a concentration profile of said first dopant impurity is located in said insulating film.

2. (Original) A method according to claim 1 wherein said insulating film comprises silicon oxide.

3. (Canceled)

4. (Currently amended) A method according to claim 1 wherein said first dopant impurity is boron.

5. (Original) A method according to claim 1 wherein said crystalline semiconductor film comprises polycrystalline silicon.

6. (Canceled)

7. (Original) A method according to claim 4 wherein said boron is supplied by diborane gas.

8. (Original) A method according to claim 1 further comprising a step of removing said insulating film.

9. (Original) A method according to claim 1 wherein said semiconductor device comprises an active matrix display device having thin-film transistors.

10. (Original) A method according to claim 1 wherein said semiconductor device comprises a shift register circuit having thin-film transistors.

11. (Original) A method according to claim 1 further comprising a step of irradiating a laser light to said crystalline semiconductor film.

12. (Withdrawn) A method of manufacturing a semiconductor device comprising the steps of:

forming a crystalline semiconductor film on an insulating substrate;

forming an insulating film on said semiconductor film;

introducing a dopant impurity into said semiconductor film through said insulating film by ion doping; and

irradiating a laser light to said semiconductor film to activate said dopant impurity,

wherein a peak of a concentration profile of said dopant impurity is located in said insulating surface.

13. (Withdrawn) A method according to claim 12 wherein said insulating film comprises silicon oxide.

14. (Canceled)

15. (Withdrawn) A method according to claim 12 wherein said dopant impurity is boron.

16. (Withdrawn) A method according to claim 12 wherein said semiconductor film comprises polycrystalline silicon.

17. (Canceled)

18. (Withdrawn) A method according to claim 15 wherein said boron is supplied by diborane gas.

19. (Withdrawn) A method according to claim 12 further comprising a step of removing said insulating film.

20. (Withdrawn) A method according to claim 12 wherein said semiconductor device comprises active matrix devices made of thin-film transistors.

21. (Withdrawn) A method according to claim 12 wherein said semiconductor device comprises a shift resistor circuits made of thin-film transistors.

22. (Currently amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a crystalline semiconductor film on an insulating surface;

forming an insulating film on said crystalline semiconductor film;

introducing a first dopant impurity into said crystalline semiconductor film through said insulating film by ~~an~~ a first ion doping;

annealing said crystalline semiconductor film; ~~and~~

forming a gate electrode over said insulating film[[,]]; and

introducing a second dopant impurity into said crystalline semiconductor film by a second ion doping by using the gate electrode as a mask,

wherein a peak of a concentration profile of said first dopant impurity is located above said insulating surface.

23. (Original) A method according to claim 22 wherein said insulating film comprises silicon oxide.

24. (Canceled)

25. (Currently amended) A method according to claim 22 wherein said first dopant impurity is boron.

26. (Original) A method according to claim 22 wherein said crystalline semiconductor film comprises polycrystalline silicon.

27. (Canceled)

28. (Original) A method according to claim 25 wherein said boron is supplied by diborane gas.

29. (Original) A method according to claim 22 further comprising a step of removing said insulating film.

30. (Original) A method according to claim 22 wherein said semiconductor device comprises an active matrix display device having thin-film transistors.

31. (Original) A method according to claim 22 wherein said semiconductor device comprises a shift register circuit having thin-film transistors.

32. (Original) A method according to claim 22 further comprising a step of irradiating a laser light to said crystalline semiconductor film.

33. (Withdrawn) A method of manufacturing a semiconductor device comprising the steps of:

forming a crystalline semiconductor film on an insulating surface;

forming an insulating film on said crystalline semiconductor film;

introducing a dopant impurity into said crystalline semiconductor film through said insulating film by an ion doping; and

irradiating a laser light to said semiconductor film to activate said dopant impurity,

wherein a peak of a concentration profile of said dopant impurity is located above said insulating surface.

34. (Withdrawn) A method according to claim 33 wherein said insulating film comprises silicon oxide.

35. (Canceled)

36. (Withdrawn) A method according to claim 33 wherein said dopant impurity is boron.

37. (Withdrawn) A method according to claim 33 wherein said semiconductor film is a polycrystalline semiconductor film.

38. (Canceled)

39. (Withdrawn) A method according to claim 36 wherein said boron is supplied by diborane gas.

40. (Withdrawn) A method according to claim 33 further comprising a step of removing said insulating film.

41. (Withdrawn) A method according to claim 33 wherein said semiconductor device comprises active matrix devices made of thin-film transistors.

42. (Withdrawn) A method according to claim 33 wherein said semiconductor device comprises a shift resistor circuits made of thin-film transistors.

43. (Currently amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a crystalline semiconductor film having a portion to become a channel region on an insulating surface;

forming an insulating film on said crystalline semiconductor film;

introducing a first dopant impurity into at least said portion through said insulating film by ~~an~~ a first ion doping;

annealing said crystalline semiconductor film; ~~and~~

forming a gate electrode over said portion through said insulating film[[,]]; and

introducing a second dopant impurity into said crystalline semiconductor film by a second ion doping by using the gate electrode as a mask,

wherein a peak of a concentration profile of said first dopant impurity is located in said insulating film.

44. (Original) A method according to claim 43 wherein said semiconductor device comprises an active matrix display device having thin-film transistors.

45. (Original) A method according to claim 43 wherein said semiconductor device comprises a shift register circuit having thin-film transistors.

46. (Original) A method according to claim 43 wherein said concentration is within a range from 5 x 10^{15} atoms/cm^3 to 5 x 10^{17} atoms/cm^3.

47. (Original) A method according to claim 43 further comprising a step of irradiating a laser light to said crystalline semiconductor film.

48. (Withdrawn) A method of manufacturing a semiconductor device comprising the steps of:

forming a crystalline semiconductor film on an insulating substrate;

forming an insulating film on said semiconductor film;

introducing a dopant impurity into said semiconductor film through said insulating film by ion doping; and

irradiating a laser light to said semiconductor film to activate said dopant impurity,

wherein a peak of a concentration profile of said dopant impurity is located in said insulating surface.

49. (Withdrawn) A method according to claim 48 wherein said semiconductor device comprises active matrix devices made of thin-film transistors.

50. (Withdrawn) A method according to claim 48 wherein said semiconductor device comprises a shift resistor circuits made of thin-film transistors.

51. (Withdrawn) A method according to claim 48 wherein said concentration is within a range from 5 x 10^{15} atoms/cm^3 to 5 x 10^{17} atoms/cm^3.

52. (Currently amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a crystalline semiconductor film having a portion to become a channel region on an insulating surface;

forming an insulating film on said crystalline semiconductor film;

introducing a first dopant impurity into at least said portion through said insulating film by ~~an~~ a first ion doping;

annealing said crystalline semiconductor film; ~~and~~

forming a gate electrode over said portion through said insulating film[[,]]; and

introducing a second dopant impurity into said crystalline semiconductor film by a second ion doping by using the gate electrode as a mask,

wherein a peak of a concentration profile of said first dopant impurity is located above said insulating surface.

53. (Original) A method according to claim 52 wherein said semiconductor device comprises an active matrix display device having thin-film transistors.

54. (Original) A method according to claim 52 wherein said semiconductor device comprises a shift register circuit having thin-film transistors.

55. (Original) A method according to claim 52 wherein said concentration is within a range from 5×10^{15} atoms/cm^3 to 5×10^{17} atoms/cm^3.

56. (Withdrawn) A method according to claim further comprising a step of irradiating a laser light to said crystalline semiconductor film.

57. (Withdrawn) A method of manufacturing a semiconductor device comprising the steps of:

forming a crystalline semiconductor having a portion to become a channel region on an insulating surface;

forming an insulating film on said semiconductor film;

introducing a dopant impurity into said semiconductor film through said insulating film by ion doping; and

irradiating a laser light to said semiconductor film to activate said dopant impurity,

wherein a peak of a concentration profile of said dopant impurity is located in said insulating surface.

58. (Withdrawn) A method according to claim 57 wherein said semiconductor device comprises active matrix devices made of thin-film transistors.

59. (Withdrawn) A method according to claim 57 wherein said semiconductor device comprises a shift register circuit having thin-film transistors.

60. (Withdrawn) A method according to claim 57 wherein said concentration is within a range from 5×10^{15} atoms/cm^3 to 5×10^{17} atoms/cm^3.

61. (Previously presented) A method according to claim 1 wherein said annealing step is conducted by a heating.

62. (Previously presented) A method according to claim 22 wherein said annealing step is conducted by a heating.

63. (Previously presented) A method according to claim 43 wherein said annealing step is conducted by a heating.

64. (Previously presented) A method according to claim 52 wherein said annealing step is conducted by a heating.

65. (Currently amended) A method of manufacturing a semiconductor device having a thin film transistor comprising the steps of:

forming a crystalline semiconductor film on an insulating surface;

forming an insulating film on said crystalline semiconductor film;

introducing a first dopant impurity into at least a portion of said crystalline semiconductor film through said insulating film by ~~an~~ a first ion doping;

removing said insulating film after said introducing step; ~~and~~

annealing said crystalline semiconductor film after said removing step[[,]]; and

introducing a second dopant impurity into said crystalline semiconductor film by a second ion doping,

wherein said portion constitutes a channel region of said thin film transistor,

wherein a peak of a concentration profile of said first dopant impurity is located in said insulating film.

66. (Previously presented) A method according to claim 65 wherein said insulating film comprises silicon oxide.

67. (Currently amended) A method according to claim 65 wherein said <u>first</u> dopant impurity is boron.

68. (Previously presented) A method according to claim 65 wherein said crystalline semiconductor film comprises polycrystalline silicon.

69. (Previously presented) A method according to claim 67 wherein said boron is supplied by diborane gas.

70. (Previously presented) A method according to claim 65 wherein said semiconductor device comprises an active matrix display device having thin-film transistors.

71. (Previously presented) A method according to claim 65 wherein said semiconductor device comprises a shift register circuit having thin-film transistors.

72. (Previously presented) A method according to claim 65 further comprising a step of irradiating a laser light to said crystalline semiconductor film.

73. (Previously presented) A method according to claim 65 wherein said annealing step is conducted by a heating.

74. (Currently amended) A method of manufacturing a semiconductor device having a thin film transistor comprising the steps of:

forming a crystalline semiconductor film on an insulating surface;

forming an insulating film on said crystalline semiconductor film;

introducing a <u>first</u> dopant impurity into at least a portion of said crystalline semiconductor film through said insulating film by ~~an~~ <u>a first</u> ion doping;

removing said insulating film after said introducing step; ~~and~~

annealing said crystalline semiconductor film after said removing step[[,]]<u>; and</u>

<u>introducing a second dopant impurity into said crystalline semiconductor film by a second ion doping,</u>

wherein said portion constitutes a channel region of said thin film transistor,

wherein a peak of a concentration profile of said <u>first</u> dopant impurity is located above said insulating surface.

75. (Previously presented) A method according to claim 74 wherein said insulating film comprises silicon oxide.

76. (Currently amended) A method according to claim 74 wherein said <u>first</u> dopant impurity is boron.

77. (Previously presented) A method according to claim 74 wherein said crystalline semiconductor film comprises polycrystalline silicon.

78. (Previously presented) A method according to claim 76 wherein said boron is supplied by diborane gas.

79. (Previously presented) A method according to claim 74 wherein said semiconductor device comprises an active matrix display device having thin-film transistors.

80. (Previously presented) A method according to claim 74 wherein said semiconductor device comprises a shift register circuit having thin-film transistors.

81. (Previously presented) A method according to claim 74 further comprising a step of irradiating a laser light to said crystalline semiconductor film.

82. (Previously presented) A method according to claim 74 wherein said annealing step is conducted by a heating.

Claims 83-86 (Canceled)